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|------------------------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO.              | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/551,373                   | 07/27/2006  | Takuo Mitani         | 050643              | 3094             |
| 23850                        | 7590        | 03/17/2009           | EXAMINER            |                  |
| KRATZ, QUINTOS & HANSON, LLP |             |                      | KWON, ASHLEY M      |                  |
| 1420 K Street, N.W.          |             |                      |                     |                  |
| Suite 400                    |             |                      | ART UNIT            | PAPER NUMBER     |
| WASHINGTON, DC 20005         |             |                      | 4111                |                  |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |
|------------------------------|--------------------------------------|--------------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/551,373 | <b>Applicant(s)</b><br>MITANI ET AL. |
|                              | <b>Examiner</b><br>ASHLEY KWON       | <b>Art Unit</b><br>4111              |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-11 is/are rejected.
- 7) Claim(s) 8 and 9 is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29 September 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449)<br>Paper No(s)/Mail Date <u>4/11/07, 9/29/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

The drawings are objected to because fig. 5 should be labeled as prior art.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37

CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

#### ***Claim Objections***

Claim 8 and 9 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Regarding claim 8 and 9, apparatus used to manufacture the separator in claim 1 is given little patentable weight. Therefore, claims 8 and 9 do not further limit independent claim 1

#### ***Claims Analysis***

It is noted that a separator **for use in storage battery** is regarded as intended use. The Courts have held that if the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967); and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). The Courts have held that it is well settled that the recitation of a new intended use, for an old product, does not make a claim to that old product patentable. See *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997) (see MPEP § 2114). As such, the limitation requiring the separator *for use in storage battery* is not given patentable weight in claims 1-10.

It is further noted that claims 1, 8 and 9 are a product-by-process claim. A process limitation in a product claim is given little weight. The cited prior art teaches all of the positively recited structure of the claimed apparatus or product. The determination of patentability is based upon the apparatus structure itself. The patentability of a product or apparatus does not depend on its method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Both claims 8 and 9 are products claims with an apparatus limitation. Product by apparatus claims have not been sanctioned by the USPTO or the Board of Patent Appeals and Interferences. Therefore, claims 8 and 9 are vague and indefinite because they blur the lines of which statutory class applicant is seeking to protect, the product or the apparatus.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

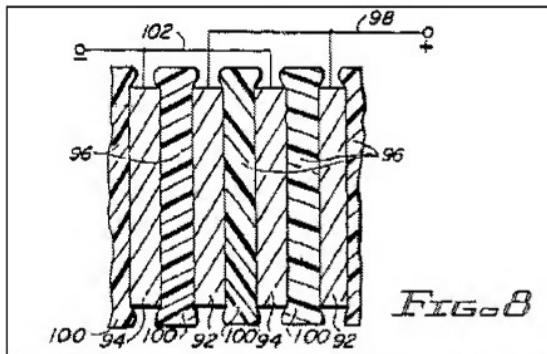
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-9 and 11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Forte et al. (US Pat. No. 6,071,651) (hereinafter "Forte").

Regarding claim 1, Forte teaches a separator (96, see fig. 8) comprising a paper sheet (resilient fibrous mat, 20) mainly composed of glass fibers (see col. 7, lines 42-43) in which the fiber distribution is uniform in the longitudinal and the cross directions of the separator, and the fiber orientation is at random in the longitudinal and the cross

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directions of the separator (see col. 13, lines 25-28). The resilient fibrous mat (20, see fig. 3) taught by Forte is uniform in density throughout its thickness and the fiber entanglement within the resilient fibrous mat is uniform throughout its thickness (see col. 6, lines 55-59). A separator with randomly oriented fibers (fiber entanglement) and uniform density would have a fiber distribution that is uniform and a fiber orientation that is random in the longitudinal and the cross directions of the separator.



Regarding claims 2, Forte does not explicitly teach a separator for use in storage battery according to claim 1, wherein the average value for a difference of a wicking velocity (time required for absorbing up to 5 cm height) between the longitudinal and the cross directions of the separator for use in storage battery is 11% or less.

However, it is reasonable to presume that an average value for a difference of a wicking velocity between the longitudinal and the cross directions of the separator for use in storage battery being 11% or less is inherent to the separator taught by Forte. Support for said presumption is found in the use of like materials (i.e. glass fibers with uniform fiber distribution and random orientation in the longitudinal and cross directions) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties would obviously have been present once the Forte product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Regarding claim 3, Forte does not explicitly teach a separator for use in storage battery according to claim 2, wherein the average value for a difference of a wicking velocity (time required for absorbing up to 5 cm height) between the longitudinal and the cross directions of the separator for use in storage battery is 7% or less.

However, it is reasonable to presume that an average value for a difference of a wicking velocity between the longitudinal and the cross directions of the separator for use in storage battery being 7% or less is inherent to the separator taught by Forte. Support for said presumption is found in the use of like materials (i.e. glass fibers with uniform fiber distribution and random orientation in the longitudinal and cross directions) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties would obviously have been present once the Forte product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Regarding claim 4, Forte teaches a separator (96, see fig. 8) according to claim 1, wherein the fiber distribution is uniform in the direction of the thickness of the separator, and the randomness of the fiber orientation in the longitudinal and the cross directions of the separator is uniform in the direction of the thickness of the separator. The resilient fibrous mat (20, see fig. 3) taught by Forte is uniform in density throughout its thickness and the fiber entanglement within the resilient fibrous mat is uniform throughout its thickness (see col. 6, lines 55-59). A separator with randomly oriented fibers (fiber entanglement) and uniform density would have a fiber distribution that is uniform in the thickness direction, and have a random fiber orientation in the longitudinal and the cross directions of the separator that is uniform in the thickness direction.

Regarding claim 5, Forte does not explicitly teach a separator for use in a storage battery according to claim 4, wherein the average value for a difference of a wicking velocity (time required for absorbing up to 5 cm height) between the right-side and the back-side surfaces of the separator for use in storage battery is 17% or less.

However, it is reasonable to presume that an average value for a difference of a wicking velocity between the longitudinal and the cross directions of the separator for use in storage battery being 17% or less is inherent to the separator taught by Forte. Support for said presumption is found in the use of like materials (i.e. glass fibers with uniform fiber distribution in the thickness direction and random fiber orientation in the longitudinal and cross directions that is uniform in the thickness direction) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald 205 USPQ 594.* In addition, the presently claimed properties would

obviously have been present once the Forte product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Regarding claim 6, Forte does not explicitly teach a separator for use in a storage battery according to claim 5, wherein the average value for a difference of a wicking velocity (time required for absorbing up to 5 cm height) between the right-side and the back-side surfaces of the separator for use in storage battery is 10% or less.

However, it is reasonable to presume that an average value for a difference of a wicking velocity between the longitudinal and the cross directions of the separator for use in storage battery being 10% or less is inherent to the separator taught by Forte. Support for said presumption is found in the use of like materials (i.e. glass fibers with uniform fiber distribution in the thickness direction and random fiber orientation in the longitudinal and cross directions that is uniform in the thickness direction) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties would obviously have been present once the Forte product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Regarding claim 7, Forte teaches a separator for use in storage battery according to claim 1, wherein there is no difference in the surface roughness between the right-side and the backside surfaces of the separator for use in storage battery and both of them are smooth. The texture of the major surfaces of the resilient fibrous mat separators, especially those subjected to hydroentanglement, are relatively smooth (see col. 14, lines 38-41). Since the smooth surfaces facilitate the movement of electrode

plates over the major surfaces of the separators, it is assumed that both sides of the resilient fibrous mat (right-side and backside surfaces) have the same, or nearly the same roughness. If the resilient fibrous mats had a different roughness on its right-side and backside surfaces, then one side would better facilitate the movement of electrode plates than the other side.

Regarding claims 8 and 9, Forte fails to teach a separator for use in storage battery according to claim 1, wherein the separator for use in storage battery is manufactured by using an inclined-type papering machine provided with a pond regulator or a twin wire-type papering machine, respectively.

However, both inclined-type papering machines and twin wire-type papering machines are well known alternative types of paper machines. Therefore, its use is anticipated. Furthermore, as discussed above both claims 8 and 9 are considered product-by-process claims and are given little weight.

Regarding claim 11, Forte teaches a storage battery characterized by using a separator for use in storage battery according to claim 1. A storage battery is anticipated by a lead-acid battery, which is taught by Forte (see col. 2 line 66 - col. 3 line 3).

***Claim Rejections - 35 USC § 103***

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Forte as applied to claims 1-9 and 11 above, and further in view of Zguris (US Pat No. 6,306,539).

Regarding claim 10, Forte fails to teach a separator for use in storage battery according to claim 1, wherein it is used for a valve regulated lead-acid battery.

However, Zguris teaches a binderless glass fiber mat suitable for use as a separator for valve regulated lead acid batteries (see col. 5, lines 51-54). The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, \_\_\_, 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, A.). It would have been obvious to a person of ordinary skill in the art to combine the separator taught by Forte with the valve regulated lead-acid battery taught by Zguris in order to provide the valve regulated lead-acid battery with a low cost, resilient, separator (*Forte*: see col. 2, lines 66-67).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASHLEY KWON whose telephone number is (571)270-7865. The examiner can normally be reached on Monday to Friday 7:30 - 5pm EST with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sines can be reached on (571) 272-1263. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AK

/PATRICK RYAN/  
Supervisory Patent Examiner, Art Unit 1795

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